Public Page
Integrity Management for Wrinklebends and Buckles #132
Contract Number: DTRS56005-T-0003
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In this period, our investigation is focused on (a) the localized corrosion effects on fatigue data, (b) corrosion defect effects on the wrinklebend assessment criteria, (c) local and global constraint effects on the stress and strain at a wrinklebend, and (d) the constraint effects on the wrinklebend assessment criteria. The results have shown the localized corrosion defects have certain effects on the fatigue experimental data for pipeline steels of interests. It the residual plastic deformation produced during the wrinklebend formed is not considered, the fatigue damage for a pure wrinklebend can increase significantly due to less constraint locally. The results also show that the small corrosion defects have not significant effects on the wrinklebend integrity due to limited constraint effects and limited stress and strain concentration for the blunt defects. However, for the large corrosion defects, the stiffness of the wrinklebend may reduce and can be easily deformed, and therefore the fatigue damage could increase a lot comparing to the wrinklebend without corrosion defects. Such corrosion and constraint effects are built in the wrinklebend criteria developed in the previously tasks.